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U. S. Department of Agriculture

First Aid for Flooded Homes and Farms

Prepared by the UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

Issued February 1937

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FOREWORD

This publication has been prepared in the hope that it may assist those who are returning to homes and farms that have been flooded. The information here presented has come from several bureaus in the Department of Agriculture and from State agricultural colleges that have had experience in rehabilitation work following floods. A leaflet issued by the New York State College of Home Economics has provided some of the material. The Red Cross and the United States Public Health Service have also made suggestions.

Owing to the wide range of conditions in the flooded areas, these suggestions are necessarily general in nature. They deal largely with basic principles whose application will vary with local conditions. Good judgment applied on the ground will naturally modify some of the recommendations made here. Local regulations and instructions from officials in charge of relief work will take precedence, of course, over the general information contained in this publication.

For more specific information and help the reader should consult county agricultural and home demonstration agents and local officials.

THE HOME

ENTERING THE HOUSE

Before entering a building, make sure it is safe and not ready to collapse. All doors and windows that have been submerged will be swollen tight. When entrance must be made by force because of

swollen doors, accumulated mud, or bulged floors, enter by a window or other opening, and then remove the pins of the door hinges by lifting them with a screw driver and hammer. Be careful not to break cast-iron hinges. Turn the knob to throw the bolt and push in the door from the outside, without damaging it.

Look for loose plaster ready to fall from the ceiling, and break it down with a stick before moving around in the building. Wet plaster is heavy, and is dangerous if loose. Watch for more loose plaster as the house dries out.

Examine the footings and basement walls to make certain that they have not been undermined or weakened seriously. If the structure is out of plumb or if the floors are badly settled, make sure that the foundation and framework are sound before doing much renovating. To dry out the house, air and heat are essential. If windows are swelled so that they cannot be raised, take off the small strip that holds in the lower sash (use a chisel carefully to avoid marring woodwork), and shove the sash from the frame by pushing from the outside. Be careful not to break the glass.

Shovel the mud from the house and pump or bail the water from the cellar as soon as practicable, to give the floors and walls opportunity to dry.

THE HEATING SYSTEM

Before starting a fire in a heating plant, examine the inside of the heater and wash the sediment from the flues with a hose or a swab on a long stick; the flues can generally be reached through the clean-out doors above the fire door. If the heater is jacketed, clean out all mud between the stove and the outside casing. It may be necessary to remove the casing. If the flues or passages are choked with mud, the heater may burst when a fire is started. Take the smoke pipe out of the chimney, and reach through the thimble to remove any mud from the lower portion of the chimney flue, to be sure there will be a draft for the fire and avoid smoking up the house.

WATER SUPPLIES AND PLUMBING

Provision for a safe supply of drinking water and sanitary disposal of sewage are matters of the utmost importance. Before drinking any water from the well have the county health authorities inspect it. They can give directions for any treatment necessary. The individual is not equipped to test water or clean wells. This is best done by two or three mobile crews properly equipped, the first to test water and seal contaminated supplies, the second to clean the wells, the third to test the cleaned wells and give a clean bill of health.

Pending examination of the water supply, the householder should employ one of the four following methods of disinfection as a temporary precaution against disease:

(1) Boil the water for 20 minutes. This is a very safe method but inconvenient for large quantities.

(2) Use chlorine tablets. This is simple and convenient. The tablets may be purchased from drug stores, and should be used in accordance with the directions supplied. The flavor of chlorine will

disappear from the water unless more chlorine is added. Boiling the water will largely remove this flavor. Chlorinated water will not affect the keeping quality of canned food, but it may destroy some of the natural color, making the vegetables or fruit paler when cooked.

(3) Use chloride of lime. Dissolve 1 teaspoonful of fresh chloride of lime (bleaching powder) in 1 quart of water, and keep this solution in a stoppered bottle. Mix thoroughly 1 teaspoonful of this solution with 2 gallons of water; after 30 minutes the water usually will be fit to drink. Fresh solutions should be made up occasionally, as they gradually lose strength.

(4) Use tincture of iodine, which is an excellent disinfectant for drinking water. Mix 1 drop of this tincture, which is approximately 7-percent iodine, thoroughly with 1 quart of water. The water so treated usually will be safe for drinking after 30 minutes. For larger quantities of water use 11 drops of tincture in 2¾ gallons (an ordinary pailfull), or 1 tablespoonful in 52 gallons (a large barrel).

Test plumbing fixtures, water closets, and basement drains by pouring in a bucket of water. If they are clear of obstruction, the water will run away. If they are stopped up, remove the clean-out plug from the trap (a U-, P-, or S-shaped pipe will be found under most such fixtures), and rake out the mud with a wire. Water-closet and drain traps can be cleaned with water and a swab, or by rodding by a wire.

Many privies will have been washed away by flood waters and others will be so wrecked that they should be replaced. Before building a new one consult the local health authorities and get plans for building a sanitary privy. The United States Public Health Service regards these as the most important items in safeguarding the health of the family.

ELECTRIC CIRCUITS

Do not turn on electric lights or appliances until the whole system in the house has been checked by an electrician for short circuits. Water is likely to have gotten into conduits, connection boxes, etc., and dampness or exposed wires may cause fires, or may electrocute a person replacing fuses, especially if he stands on wet ground.

HOUSEHOLD MECHANICAL EQUIPMENT

Have motors for pumps, washing machines, sewing machines, vacuum cleaners, dough mixers, and other household equipment examined by a competent person to see that they are clean, dry, and free running before turning on the current, or they may be ruined. (See also under Electric Circuits, above.)

Clean all parts without forcing any dirt into the bearings. Wipe metal surfaces clean with rag wet with kerosene to remove rust and dirt stains, and coat thinly with petrolatum or machine oil to prevent further rusting. Before using, oil the bearings and wipe surfaces exposed to hands or clothing dry with soft cloth. (See also under Walls, Woodwork and Doors, and Furniture, p. 4.)

Cooperation in the employment of electricians to collect and recondition the motors in a central shop might be practicable. (See also instructions under Farm Equipment, p. 12.)

WALLS, WOODWORK, AND DOORS

Usually all woodwork that has been submerged by flood waters will be heavily coated with mud. Scrub all woodwork with a stiff fiber brush and plenty of water, to remove the silt in corners, cracks, and crevices before the house is dried out.

Do not attempt to wash damp plaster; it should not be rubbed or cleaned until it is bone dry. Then it may be rubbed uniformly and lightly with stale bread crumbs, sponge rubber, or a good wallpaper cleaner. With care, plaster may be wiped with a slightly damp cloth and dried immediately. Leave badly stained walls for treatment when final redecoration is to be done.

Take the knobs from the doors and lay the doors on a level surface with wooden strips separating them, to facilitate drying and to prevent warping and twisting out of shape. With veneered doors this is especially important. Such doors are very likely to be ruined by submersion, but some of them may be usable if they are piled properly and dried carefully to prevent separation of the plies.

Locks, especially those of iron, should be taken apart, wiped with kerosene, and oiled. If it is not feasible to remove them, squirt in a little machine oil through the bolt opening or the keyhole, and work the knobs so as to distribute the oil. Otherwise the springs and metal casing will soon rust and need replacing. Do not use too much oil or it will drip onto the woodwork and make later painting difficult.

Put off painting and redecoration until the moisture has dried from the framing, from the back of the trim, and from between walls and floors; this may take several months. Paint will not stay in place when applied on damp wood or plaster.

If the paint still looks cloudy, make the following solution: Shave a large cake of laundry soap into a gallon of boiling water. Dissolve 2 ounces of glue (this may be bought at hardware stores) in a quart of boiling water. Mix the two solutions. If a thicker mixture is desired, add flour mixed with cold water. Apply this jellylike mixture to the walls or painted floor or furniture.

If the paint is very soiled, put the solution on the whole wall area at once. The short time the glue solution stays on the entire wall will give it an additional chance to loosen the dirt. At the end of a few minutes rinse off the solution with clear water and wipe dry with a clean cloth.

If the paint is not very soiled, put the solution on one small space at a time, rinse it off with clear water, wipe dry, and then do another small space next to the one just done. Overlap the spaces.

If, after the interior woodwork and walls in the house have been cleaned of the accumulation of mud and dirt, it is found that the original finish is gone, consult an experienced painter in regard to restoring the finish. If you think you can do the work yourself, be guided by the instructions on the cans of standard brands of paints and varnishes for household use.

WALLPAPER

Wallpaper hanging from walls and ceilings is difficult to replace because it is brittle and is likely to be badly stained. Ordinarily, tear it off and redecorate when convenient. Small sections of wallpaper may be stuck in place with a good paperhanger's paste, or with a paste made by mixing 2 pounds of wheat flour to a smooth batter with lukewarm water (taking pains to eliminate all lumps) and adding gradually enough boiling water to cook the paste and turn it into a doughy mass. When it has turned slightly darker, it is cooked. When the paste becomes stiff, add a little cold water, stir until smooth, and set away to cool. Thin it to working consistency with cold water just before using.

To remove mold on wallpaper caused by dampness, coat the spots with a solution of 1 part salicylic acid and 4 parts grain alcohol, and apply it with a soft brush. To remove grease spots, try covering them with a paste of calcined magnesia or carbonate of magnesium and water. Apply with a soft brush and remove it when dry with a sharp knife.

FLOORS AND ROOFS

After the accumulation of mud and dirt has been removed from the floors they will in all probability be found badly buckled. Do not attempt to repair them until they have had a chance to dry out. Start a fire in the heating plant but do not overheat the house. To do so would only create vapor and perhaps steam that would be absorbed by the wood and delay drying.

After the house has dried out, it may be feasible to draw some of the flooring back into place with cement-coated nails. No attempt should be made to refinish floors until the wood is dry. Sometimes uneven floors are planed heavily; the work can be lightened considerably if a planing or sanding machine can be hired. Floors treated in this way may never look good again, but they will serve as a base for a good floor. When the humps have been mostly removed, a good surface can be obtained by covering the floor with a felt base and linoleum. Where only the floor finish has been damaged, the floor may be reconditioned by methods described in Farmers' Bulletin 1219, Floors and Floor Coverings.

Damaged roof coverings may be repaired temporarily with material immediately at hand and later repaired by one of the methods described in Farmers' Bulletin 1751, Roof Coverings for Farm Buildings and Their Repair.

FURNITURE

Take all furniture outdoors and remove as many of the drawers, slides, or other working parts as possible. These will probably be stuck tight. Do not force the drawers with a screwdriver or chisel from the front. Remove the back by cutting it out if necessary and push out the drawers. After the various moving parts of the furniture have been removed in this way, clean off all mud and dirt, using a hose stream if necessary, and then take them all indoors again and store them dissembled where they will dry out slowly. Do not leave them out in the sun because they will warp and twist all out of shape if you do.

Some of your furniture, especially that made of solid wood, may be salvaged by regluing. Gluing, however, is a fairly difficult job to do at home because on many places it is necessary to use clamps. Before starting this task, therefore, decide whether it is worth while investing in this equipment and whether you have the time and ability to do the work. If you find the work too difficult to attempt, consult an expert cabinetmaker about it.

Overstuffed furniture should first be cleaned and the odor removed. If the furniture has not been dried out thoroughly, but has been allowed to stand in a damp condition for a long time, the stuffing may have started to decay, and if it has, it will probably be necessary to replace the stuffing to get rid of the odor.

If, after cleaning, the upholstered material has faded or looks worn, it may be dyed or recovered or a slip cover may be made for the piece of furniture.

The furniture may need repairing; that is, the springs may need to be cleaned, and rust removed, and oiled; the frame may need to be cleaned; and the stuffing may need to be replaced. If this is true, the furniture may be sent to an expert cabinetmaker and upholsterer, or the renovating may be done at home.

Some of your furniture on the upper floors of your house may not have been submerged, but may only have become damp because of the water below. In such cases the varnished surface may have developed white spots or a scum caused by dampness. Such defects may be removed by rubbing the surface lightly with a piece of flannel dampened with spirits of camphor or essence of peppermint, and after a few minutes, applying furniture polish. A drop or two of ammonia on a damp cloth may be used in place of the camphor or peppermint. If the spots cannot be removed in this way, it will probably be necessary to refinish the furniture.

Repairing veneered furniture is so difficult and requires so many different types of tools that it is not practical to try to do it at home. Consult an expert cabinetmaker about such repairing, or have the store from which you bought the furniture send it back to the factory to be repaired. If you are allowed a certain amount of money on the flood-damaged furniture, it may be worth while financially to apply that money on the cost of a new set rather than to use it in paying for repairs on the cheaper sets.

Clean metal as soon as practicable, especially if it has an iron base which is likely to rust badly. Rust on iron can be wiped off readily with a rag saturated with kerosene. Then lightly coat iron hardware with petrolatum or machine oil. Polish stoves and similar rough iron work with a good stove polish. Wash pots and pans with soapy water to remove the kerosene, and then coat with leaf lard heated on the stove or in the oven, wipe, and put away. Clean brass and copper with a pomade or special polish; then wash it with warm, soapy water and dry it thoroughly.

BOOKS

Books and papers should be dried carefully and slowly. After exposure to the air for a time they should be piled and pressed to keep the leaves from crumpling. This alternate drying and pressing should be continued until the materials are thoroughly dry, so as to

prevent mildew. A little heat and separating of the pages are desirable towards the end of the process, to prevent musty odors.

ODORS

Odors in basements although unpleasant are not necessarily harmful to health. To remove them, sprinkle chloride of lime over the basement floor; allow it to stay there until the floor dries, then sweep it up and scrub the floor. This material is a good disinfectant. If there is objection to its odor, use common rock or stock salt. Sprinkle this over the basement floor, and if the floor is dry spray a small amount of water over the salt. Allow this brine solution to stand for about an hour, or until it dries; then sweep the floor and wash it with soap and water.

REFERENCES

Publications helpful in rehabilitating homes that have been flooded include: Farmers Bulletins 1219, Floors and Floor Coverings; 1227, Sewage and Sewerage of Farm Homes; 1460, Simple Plumbing Repairs in the Home; 1698, Heating the Farm Home; 1749, Modernizing Farmhouses; 1751, Roof Coverings for Farm Buildings and Their Repair; and Leaflets 76, Slip Covers; 77, Bracing Farm Buildings.

FOODS AND CLOTHING

SAVING DAMAGED FOODS

Floodwaters carry scourings of sewage systems, backed-up sewage, barnyard filth, etc.

Squads of food and drug inspectors and other officials are checking all food and drug supplies damaged by floodwaters; requiring the proper cleansing and disinfecting of hermetically sealed containers and the destruction of all other supplies. Most retailers and distributors are cooperating fully.

Help to prevent typhoid and other dangerous diseases in the following ways:

Destroy fresh fruits and vegetables, foods and medicines in cardboard containers and other containers not hermetically sealed that were in contact with floodwaters, and flour and other commodities in bags.

Destroy the contents of screw-top glass containers and corked bottles if the containers have been touched by floodwaters. (Experience has shown such food to be potentially dangerous.)

Destroy tin cans the tops of which bulge or which leak (indications of spoilage).

Disinfect foods and drugs in hermetically sealed cans before opening, in the following manner:

Remove labels and wash containers in warm soapy water.

Disinfect or sterilize the containers by one of following methods:

Immerse in chlorine solution or other sterilizing solution recommended by the health authorities. (Phenol, cresol, or other coal-tar disinfectants are unsuitable because of their odor.) Use 100 parts

of chlorine to a million parts of water, OR cover the containers with cold water. Add 1 teaspoonful of washing soda to each quart of water used to cover the cans. Let the water come to a boil and boil for one-half hour.

Rinse containers in fresh water.

Guard against distribution of contaminated food, in the following ways:

Advise your merchant that you are trading with him in the belief that he is not handling contaminated food.

Avoid hucksters (especially strangers) selling food at bargain prices. Report them (and license numbers of their cars) to health officials.

Report to health officials the movement or sale of any food you suspect to be damaged by flood.

CLEANING CLOTHING AND BEDDING

Mud-stained white cottons and linens (clothing, sheets, towels, table linen, etc.) can be cleaned with some effort.

Do not plunge white cotton and linen fabrics stained with flood-water carrying red or yellow clay into hot soapsuds. Clay makes a stain like iron rust, and hot soapsuds will set such stains. Also be careful not to overbleach flood-stained fabrics.

First brush off all loose dirt possible. Then rinse mud-stained fabrics several times in cold water to take out particles of soil lodged in the fibers. When no more dirt can be rinsed out, wash the articles in warm soapsuds, through several waters if necessary.

In extreme cases, try bleaching white cottons and linens in Javelle water or in a weak solution of oxalic acid (1 ounce of oxalic acid dissolved in 1 gallon of water) and rinse thoroughly. To get the last traces of acid out of the cloth, give a final rinse in ammonia water.

CAUTION.—Oxalic acid is poison. Label it at once and keep it out of the reach of children.

Dry white fabrics in sunshine if possible, to aid in bleaching.

To make Javelle water, dissolve 1 pound of washing soda in 1 quart of boiling water, cool, and add one-half pound of bleaching powder (chloride of lime) dissolved in 2 quarts of water. An earthenware jar or granite container is best. Allow the mixture to settle, preferably overnight, and dip off the top liquor or strain through several thicknesses of cheesecloth so that the solution for bleaching contains no solid particles. Store in tightly closed bottles. When necessary, place one-half pint of this mixture in 1 gallon or more of cold or lukewarm water, and immerse the clothes.

Allow them to remain until the desired amount of bleaching has been accomplished, although longer than half an hour is likely to be harmful to the fabric. Boiling in Javelle water may weaken the material.

Rinse thoroughly in water, and if possible pass into an antichlor bath containing one-half ounce of sodium thiosulphate and one-fourth ounce of 36-percent acetic acid per gallon. Sodium thiosulphate (hypo) is used in many homes where amateur photography is being done, or can be obtained at the drug store.

In using Javelle water care must be taken with fabrics already weakened, such as curtains, and no garment containing silk or wool, either as part of the fabric or as stitching or trimming, should be so bleached. Silk and wool dissolve in this solution. No fabric containing a colored design should be treated in this way, as many dyes are not fast to chlorine bleaches.

To clean woolen clothes and blankets, first shake and brush well to remove as much dirt as possible. Next rinse several times in lukewarm water to remove particles of soil lodged in fibers. Then prepare an abundance of lukewarm suds from neutral soap. Squeeze and work in the suds without rubbing. Press out the excess water and wash in a second suds of the same temperature. Never boil wool materials. Rinse free from soap in several changes of lukewarm water.

Woolens should be dried in a warm place but not near a fire or in the direct sunlight. Never allow them to freeze. Hang knitted underwear from the shoulders. Spread sweaters and other knitted garments on a table or floor and shape according to desired dimensions.

Hang blankets over a line.

Press wool garments while still damp with a medium-hot iron, and protect with a pressing cloth if they are to be ironed on the right side.

To clean silk and rayon articles, remove mud and other loose dirt in the way recommended for cotton and linen articles. Wash in an abundance of lukewarm suds, according to the directions given for woolens. Dry in the shade and, while still damp, press on the wrong side with a warm iron.

Mildew stains are caused by a fungus growth. If mildew has penetrated the fibers and been there for some time, the stain cannot be removed without damaging the cloth.

Javelle water will partially bleach out mildew stains on white cotton and linen. See directions under white cotton and linen.

Mattresses soaked with floodwater are generally damaged beyond use, and reconditioning is too difficult to be done at home. A sufficiently valuable mattress may be sent to a commercial renovating company, where the stuffing will be taken out and thoroughly cleaned, the ticking cleaned and resized, and the whole put together again in a mattress frame. Directions for making a new cotton mattress may be obtained from the Bureau of Home Economics on request.

Transfer the feathers from pillows to a muslin bag two or three times the size of the ticking by sewing the edges of the openings of the ticking and the bag together and shaking the feathers from one to the other. Wash the bag of feathers in lukewarm soapsuds; repeat and rinse in lukewarm water, changing it several times. Squeeze out all the water possible, and lay the pillows on a sheet to dry in the sun or in a warm place, or pin them to the line to dry in the open air. Shake up the feathers occasionally to hasten the drying. If the pillow has stood for a long time in floodwater, it may be impossible to remove all traces of offensive odor. While the feathers are drying, wash the ticking. When it is dry, apply a very stiff starch mixture to the inside with a sponge to keep the feathers from working through. When both feathers and ticking are thoroughly dry, refill the ticking in the same way that it was emptied.

Flood-soaked thick comforters of cotton or wool, like mattresses, are very difficult to recondition. The only way is to take them apart and wash the cover and filling separately and then refill and tuft them together.

Lightweight quilts may be washed like cotton or wool blankets, and if possible should be dried quickly out of doors in the sun to remove the unpleasant odor.

CLEANING RUGS AND CARPETS

Let rugs and carpets dry out thoroughly. Then beat or sweep or use a vacuum cleaner to remove as much dirt as possible. If necessary shampoo them with soap jelly. Leave large rugs on the floor or spread them out on a porch. For convenience work with small rugs on a table near the sink or laundry tubs.

Make the soap jelly with 1 part of mild soap flakes dissolved in 5 parts of hot water. Beat with an egg beater to form a stiff lather and apply with a brush or sponge to a small part of the rug at a time. Scrub gently. Then wipe off the dirty lather and rinse this section immediately with clean water. Work over the surface of the rug in this way in overlapping sections so as not to leave streaks, and when rinsing for the last time brush the nap in one direction.

After shampooing them, dry the rugs or carpets as quickly as possible.

Under ordinary circumstances there is danger of colors running and rugs shrinking when shampooed by home methods, but with articles badly damaged by floods, it is generally a case of reconditioning them for any possible use.

After such treatment some types of machine-made pile rugs may need resizing to make them lie flat on the floor. Dissolve one-half pound of granulated glue in 1 gallon of boiling water. Lay the clean rug face down on papers in some part of the house where it can remain undisturbed, and tack it down at intervals, being careful to have it straight and true. Then with a whitewash brush or a whisk broom, brush the hot glue over the back of the rug, and let it dry thoroughly.

CAUTION.—Do not use so much glue that it will soak through to the right side of the rug.

CLEANING UPHOLSTERY FABRICS

To clean upholstery fabrics, follow the directions for rugs and carpets, first brushing off all loose dirt and then shampooing the fabric with a lather of mild soap, and rinsing quickly.

If the entire piece of furniture has been submerged, joints may be loosened and springs may be rusted. If springs can be reached, rub them with oil or kerosene.

REFERENCES

More detailed information than given above can be obtained from Farmers' Bulletins 1374, Care of Food in the Home; 1474, Stain Removal from Fabrics, and 1497, Methods and Equipment for Home Laundering.

THE FARM

LIVESTOCK AND FEEDS

Water alone does not necessarily injure feed. The principal danger in feeding hay, grain, or forage that has been wet is caused by changes in the feed resulting from mold, putrefaction, and fermentation. If feed has only recently been wet and it can be dried quickly, there is much less danger than when the wet condition is of several days' or weeks' duration.

Wet hay should be promptly spread out to dry and turned and shaken frequently. It may be handled in much the same way as hay that is being made from freshly cut grass. Bales of hay, of course, should be opened and well spread out. Wet grain, likewise, should be spread out and dried as quickly as possible. Small quantities for immediate use may be dried fairly quickly in artificially heated, well-ventilated buildings.

Feeds that are slightly musty or partly spoiled are more likely to injure horses than cattle, and hogs will tolerate still poorer feeds. But there is a distinct risk in giving feed that is spoiled in any degree. Under no circumstances should spoiled feed be given when sound feed is available. Livestock may, however, tolerate small quantities of inferior feed, and such feed may be given to sustain life until supplies of safe feeds can be obtained. The principal danger is from digestive disturbances and so-called forage poisoning.

The presence of sand or dirt in feed is not, in itself, a noteworthy danger since animals normally consume small quantities of dirt. However, the presence of considerable quantities of such matter tends to make feed unpalatable. It is therefore advisable to remove the dirt by sifting, shaking, or other means.

HANDLING MOWS OF HEATING HAY

Heating haymows may set fire to farm buildings. Upon the first indication that hay in barns is heating, maintain a close watch. The emission of water vapor, pungent and irritating odors, or the presence of hot, wet areas or flues on the surface of the mow are warnings.

The first thing to do is to make a check on the temperatures down in the mow before deciding upon what action to take. Drive a sharp-pointed pipe down into the hay and lower a thermometer inside the pipe, and leave it there for about 20 minutes. Make the reading quickly when the thermometer is removed.

If the temperature climbs to 185° F. it is definitely reaching a point of danger which warrants stopping all ventilation and removing the hay from the barn, although, if left undisturbed, it might cool eventually. If the temperature reaches 200° there should be no question about the advisability of removing the hay. But before this is done take all possible precautions against fire. If there is a volunteer fire department near, ask it to bring out all the equipment. If there is no such service available, have an adequate amount of water at hand to quench a possible blaze when the "hot pockets" are exposed to the air. Do not uncover or remove such hot hay without first wetting it thoroughly, otherwise when it is exposed it will burst into flames.

Any indication of heating haymows following the receding of the floodwaters should be promptly reported to the Bureau of Chemistry and Soils, U. S. Department of Agriculture, Washington, D. C., and further detailed instructions regarding additional precautions to follow in removing hay from barns when advanced stages of heating have been reached will be furnished.

DISPOSAL OF ANIMAL CARCASSES

When dead animals are found on the premises, promptly disposing of them in a sanitary manner is of great importance to the living animals in the neighborhood. It is a good practice to dispose of all animal carcasses in a sanitary manner even though the danger of disease may at the time seem remote. Wherever it is possible to dispose of carcasses of drowned animals through a rendering plant this is the best thing to do. Generally, such carcasses have some commercial value.

If this method of disposal is not possible, the dead animals should be disposed of on the premises. Immediately after finding a carcass, cover it with crude oil or kerosene to keep away dogs, buzzards, and vermin. Choose the site for burial where subsurface drainage will not reach the water supply of the farm family or livestock. Bury the carcass deeply so that it will not be accessible to predatory animals. In case suitable fuel, such as oil or dry wood is on hand or can be obtained at moderate cost, carcasses may be burned. Such cremation should always be thorough.

INFECTIOUS DISEASES

In the wake of floodwaters there is some danger of infectious diseases, but unless serious outbreaks of infection have occurred recently, the danger is not sufficiently great to be alarming.

Wherever animals are assembled in concentration pastures for care during the emergency, it is advisable to be on the watch for any indication of infectious diseases and arrange for the handling and feeding of the animals by an experienced stockman, under the supervision of a veterinarian.

TRASH IN PASTURES

Before restocking pastures that have been flooded, make an inspection of them, especially along fence lines and corners. The small amount of time devoted to this precaution is likely to be well repaid through the prevention of cuts and other injuries to livestock from pieces of barbed wire, sharp metal, and other trash which tends to accumulate in fenced enclosures.

FARM EQUIPMENT

TRACTORS AND INTERNAL-COMBUSTION ENGINES

Before attempting to start the engine, make a thorough inspection to determine whether everything is in order.

Carefully clean exposed gears, sprockets, and chains, and finish by washing carefully with kerosene.

Remove and clean carburetors, intake and exhaust manifold, magnetos, and spark plugs, and all parts of the engine that might entrap dirt, including air filters. (Note how and where the parts came off, so they can be replaced exactly as they were.)

Remove the cylinder head and clean the cylinders of all entrapped dirt and grit. In doing this, first free any parts attached to the head, and take care not to damage the gasket or the facing of head or cylinder.

Examine the inlet and exhaust valves and make sure that they are free from dirt and do not stick.

If mud or grit is lodged in the cylinder, pull the pistons and thoroughly wash them and the cylinder with gasoline or kerosene. To do this, remove the big end connecting-rod bolts. Clean the bearings, and put a few drops of oil on the journal before replacing. Be careful not to damage threads or to lose shims, and to reassemble parts exactly as they were.

Take apart as necessary and thoroughly clean all bearings, gears, and pistons in an engine with open crankcase.

Inspect the interior of enclosed crankcases or gear cases by removing plates or handhold covers. If there is water or grit in the case, which might have been admitted by leaking gaskets or packing glands, remove the oil, wash out the case with gasoline or kerosene, and put in clean oil.

Wash the external or fin portion of the radiator carefully with a hose. Sediment or dirt caked in the cells will cause overheating of the engine.

Inspect the fan belt and the fan. Replace and repair them as necessary and see that the fan turns freely.

Remove and empty the gasoline tank, as it is likely to contain water and grit after being immersed.

After all parts have been replaced, examine the machine to see that everything appears in order, then turn over the engine by hand. If it turns freely, it probably is ready for starting.

ELECTRIC GENERATORS AND MOTORS

When generators and motors have gone through a flood it is usually advisable to have them inspected and reconditioned by an electrician experienced in doing this work. If such service is not available, a careful individual perhaps may obtain satisfactory results by proceeding as follows:

Remove and thoroughly wash the bearings; then oil and replace them. Clean the oil wells supplying the bearings and fill them with fresh motor oil.

Clean slip rings and commutators of grit and dirt particles and examine brushes to see whether they move freely in their holders.

Take out the armature or rotating member and clean it well with water from a hose under low pressure or with pails of water. High-pressure water or air may cause even fine grit to damage surfaces or insulation. Treat the stationary coils similarly. After washing with water, wash with gasoline. (Remember that smoking or an exposed flame constitutes a fire hazard.)

After the coils are cleaned, dry them by heating gently for 10 to 15 hours, then paint them with insulating paint and dry for a few hours longer.

Reassemble the machine, examine it to see whether all parts are in place and properly secured, and turn the rotary part by hand to see whether it is free. Then operate the machine very slowly with a small current supplied through a rheostat or resistance coil. If the machine is a motor, supply just enough current to turn it over slowly. If it is a generator, drive it so slowly that it will generate just a small current. This will complete the drying process.

FARM MACHINERY

Before trying to operate any machine inspect it carefully and remove all dirt and debris.

Clean and oil all bearings, sprockets, chains, and gears not protected against the entrance of water and grit. Sometimes bearings equipped with grease cups or alemite or zerk fittings can be sufficiently cleaned by forcing grease or oil through them until a considerable amount has oozed out from the sides of the bearings.

After cleaning the bearings and replacing the parts removed, carefully turn over the moving parts of the machine by hand to make sure that they work freely and that no dirt or debris remain to interfere with operation of the machine.

Examine all belts and repair or replace them as needed.

Unroll, clean, and thoroughly dry all canvas conveyors or covers on the machine or in storage to prevent mildewing.

Examine the knife bars of binders and mowers and free them of dirt.

Clean all of the dirt and rust from smooth parts such as moldboards of plows, disks of harrows, and shovels of cultivators, and coat them with grease or used crankcase oil.

DITCHES AND DRAINS

Clean out farm ditches and drains promptly in order to remove excess moisture from the soil and fit the fields for cultivation and to avoid danger to public health that may result from stagnant water.

Clear outlet ditches of debris, drift, silt bars, and shoals to provide good outlet for field ditches and drains. In the smaller ditches, bars can be removed with shovels or with teams and scrapers. In the larger ditches dynamite frequently can be used to advantage. Start the work at the lower end of the ditch so as to get rid of standing water that will impede the work.

Inspect the outlets to all tile drains to make sure that they are free and that the drains are operating satisfactorily. Rebuild promptly tile-outlet head walls that have been displaced. Where tile lines do not drain satisfactorily obstructions can frequently be located by holes in the ground over the tile. Standing water over a tile line shows that it is not operating satisfactorily. In making repairs work upward from the lower end of the tile line.

Information concerning the use of dynamite in ditching and the construction of tile drains is given in Farmers' Bulletin 1606, Farm Drainage.

REFERENCES

More detailed information than given above may be obtained from Farmers' Bulletins 954, The Disinfection of Stables; 1606, Farm Drainage; 1754, Care and Repair of Mowers and Binders.

INSECT CONTROL

Control of insects will be an important problem, especially in southern sections of the flood zone.

Concentration of people in camps may produce trouble from annoying and disease-carrying insects such as lice, bedbugs, mosquitos, and houseflies.

For the control of bedbugs spray infested mattresses and bedsteads thoroughly and repeatedly with kerosene-pyrethrum extract sprays (fly sprays).

Buffalo gnats, especially along tributaries of the Mississippi River in Arkansas, Louisiana, Mississippi, and Tennessee, cause most losses to livestock when the gnats first appear in numbers. Be ready to fight gnats by the following methods:

Remove livestock from low-lying pastures along rivers, and put in open pastures where you can watch them.

Have ready for immediate use materials to make smudges to repel gnats. For this purpose the following are useful: Green wood, old tires, damp straw, manure, and old burlap or rags.

Protect animals working in the field with a gnat repellent such as an emulsion of pine tar oil. Dissolve one-half pound of common laundry soap in 1 gallon of hot water and, while still hot, add slowly while stirring vigorously 6 ounces of pine tar oil.

Control houseflies by the following methods:

Protect food from flies and other insects.

Clean up breeding places.

Exclude flies from out-door toilets and put a handful of borax into the pit every 4 or 5 days.

Remove garbage and manure frequently. Burn, bury, or treat garbage with borax, 1 pound to 10 bushels. If the manure and other materials are to be used as fertilizer use only three-fourths of a pound of borax to 10 bushels or if hellebore is available in the drug stores, stir one-half pound of it into 10 gallons of water. Pour the solution over manure piles and other places where flies breed.

Kill flies with the usual sprays, flypapers, etc.—or with traps and baits.

This is one suggested poison bait: One teaspoonful of a 40-percent solution of formaldehyde and water in a cup of half milk and half water to which a small amount of brown sugar has been added. Put this mixture in shallow plates with piece of bread in the middle of each plate. Set plates in each room. Pull down all the window shades except one in each room—leave this shade up 5 or 6 inches from the sill—and set bait in light.

To control body lice, heat clothing to 140° F. for 20 minutes—or soak in water at 165° for the same length of time. Dust body lightly with derris powder, or apply kerosene emulsion. To make the emulsion dissolve 1 part of soap chips in 4 parts of water. Heat and add 2 parts of kerosene while beating vigorously. Dilute

emulsion with 4 parts of water before using. Lather the body and leave the emulsion on 15 minutes. Leave derris powder on overnight.

After a flood, mosquitos may be exceedingly abundant in usual mosquito territory and may appear in areas not usually troubled. Take the following steps:

(1) Drain cellars and vaults of all kinds. If it is not possible to drain them, cover the water from time to time with a thin film of kerosene or light fuel oil or other mosquito larvicide.

(2) Drain or oil mosquito-breeding ponds.

(3) Empty water from barrels, cans, and other vessels, not only to prevent mosquitos but also because water may be polluted by floodwaters.

(4) Repair screens, to prevent annoyance from mosquitos and to prevent malaria.

(5) Sprinkle oil of citronella on cloths and hang them over beds and around windows and doors. Doing this will tend to keep away mosquitos—if there are not too many of them.

(6) Keep small children indoors—especially in the early morning and in the evening. If children do go out, rub citronella on their clothes and a little on exposed parts of the body.

REFERENCES

More detailed information than given above may be obtained from Farmers' Bulletins 734, Flytraps and Their Operation; 754, The Bedbug; 1408, The House Fly and How to Suppress it; 1570, Mosquito Remedies and Preventatives. Also Bureau of Entomology and Plant Quarantine mimeographed circulars E-258, Measures to be Taken for Louse Control; E-401, The Southern Buffalo Gnat.



